and a leopard. Sometimes I saw where the male had wandered a short distance from the tree in the early morning to gather the itando plant and fruit, the hulls of which were at the base of the tree beneath the nest.

The gorilla usually left his bed shortly after daybreak in the morning; but on several occasions I surprised families, evidently "sleepy-heads," in bed an hour or two after break of day. These usually waited until we got very close to the beds and then gave out their disconcerting yells and made off. By dusk the gorillas were all in the beds.

U. S. National Museum, Washington, D. C.

DIAGNOSES OF SEVEN NEW CHIPMUNKS OF THE GENUS EUTAMIAS, WITH A LIST OF THE AMERICAN SPECIES

By Arthur H. Howell

Recent studies of the North American chipmunks, based on the extensive series in the Biological Survey collection, supplemented by a large amount of material loaned by other museums, have revealed the existence of a number of unrecognized forms and have resulted in a much clearer conception of the relationships of the various forms.

Since publication of the complete results of these studies may necessarily be delayed for some time, it is deemed wise to publish now preliminary descriptions of the new forms and a list of the species grouped to show their relationships.

Eutamias minimus arizonensis subsp. nov.

Type.—No. 205,869, U. S. National Museum (Biological Survey collection); male adult, skin and skull; from the Prieto Plateau at the south end of Blue Range, Greenlee County, Arizona; collected September 7, 1914, by E. G. Holt; original number 384.

Subspecific characters.—Similar in size and cranial characters to *Eutamias minimus atristriatus;* nearest in color to *E. minimus consobrinus,* but general tone more grayish (less tawny), the shoulders frequently washed with pale smoke gray (as in *Eutamias cinereicollis*); tail more bushy and color of under surface brighter tawny (about as in *operarius*).

Measurements of type.—Total length, 197; tail vertebræ, 87; hind foot, 30; ear from notch, 12. *Skull:* Greatest length, 32.6; zygomatic breadth, 18; mastoidal breadth, 14.5; interorbital breadth, 7.1; length of nasals, 10.1.

Remarks.—This race of the least chipmunk is restricted, so far as known, to the White Mountains and Prieto Plateau of eastern Arizona. It occurs over a

part of the range of *Eutamias cinereicollis* and so closely resembles that species in color that it has until recently escaped recognition. The sides are slightly paler and the nose less heavily washed with clay color than in *cinereicollis*, but in all other markings the resemblance between the two species is remarkable. However, *arizonensis* is decidedly smaller, with much shorter ears and hind feet, while the skull closely resembles that of *atristriatus*, and is widely different in size and proportions from that of *cinereicollis*.

Eutamias amœnus vallicola subsp. nov.

Type.—No. 168,027, U. S. National Museum (Biological Survey collection); female adult, skin and skull; from Bass Creek, near Stevensville, Montana (altitude 3,725 feet); collected March 23, 1910, by Clarence Birdseye; original number 1052.

Subspecific characters.—Similar to *Eutamias amœnus luteiventris*, but averaging paler throughout, especially the head, upper parts of body, and under surface of tail.

Measurements of type.—Total length, 223; tail vertebræ, 102; hind foot, 32.5; ear from notch, 14. *Skull:* Greatest length, 33.6; zygomatic breadth, 18.8; mastoidal breadth, 15; interorbital breadth, 7.5; length of nasals, 11.3.

Remarks.—This subspecies is apparently confined to the Bitterroot Valley and the adjacent foothills, but the exact limits of its range are not known. Twenty-six specimens from the valley, representing both winter and summer pelage, have been examined.

Eutamias ruficaudus simulans subsp. nov.

Type.—No. $\frac{28487}{40591}$, U. S. National Museum (Biological Survey collection); female adult, skin and skull; from Cœur d'Alene, Idaho; collected June 1, 1891, by Clark P. Streator; original number 881.

Subspecific characters.—Similar to *Eutamias ruficaudus ruficaudus*, but color of sides, under surface of tail, and tail edgings paler; skull with relatively broad braincase and rostrum.

Measurements of type.—Total length, 248; tail vertebræ, 117; hind foot, 33; ear from notch, 14. *Skull:* Greatest length, 35; zygomatic breadth, 19.3; mastoidal breadth, 15.8; interorbital breadth, 7.8; length of nasals, 12.1.

Remarks.—This race of the rufous-tailed chipmunk occupies the mountains of northwestern Montana (west of the main divide), northern Idaho, northeastern Washington, and southeastern British Columbia. It bears a rather striking resemblance to *Eutamias amœnus felix* of the coast region of British Columbia, but may be distinguished from that species by its slightly larger skull, longer and slightly paler tail, whiter underparts, paler sides of body and face, and more tawny head.

Eutamias bulleri solivagus subsp. nov.

Type.—No. 116,882, U. S. National Museum (Biological Survey collection); female adult, skin and skull; from Sierra Guadalupe, Coahuila, Mexico; collected May 1, 1902, by E. W. Nelson and E. A. Goldman; original number 15,169.

Subspecific characters.—Similar to *Eutamias bulleri bulleri*, but sides slightly darker; head slightly paler (more grayish); tail darker beneath and edged with a darker shade of buff; hind foot shorter; skull smaller.

Measurements of type.—Total length, 234; tail vertebræ, 108; hind foot, 35; ear from notch, 17. *Skull:* Greatest length, 36.6; zygomatic breadth, 19.5; mastoidal breadth, 15.8; interorbital breadth, 8.3; length of nasals, 12.1.

Remarks.—This race apparently is confined to an isolated mountain range in southern Coahuila. It resembles typical *bulleri* in color, but is readily distinguished by the darker color of the under side of the tail. In this character it resembles *durangæ*, but differs from that race in the absence of a buffy wash on the upper parts.

Eutamias speciosus sequoiensis subsp. nov.

Type.—No. $\frac{30899}{42799}$, U. S. National Museum (Biological Survey collection); female adult, skin and skull; from Mineral King, east fork of Kaweah River, California (altitude 7,300 feet); collected September 12, 1891, by Vernon Bailey; original number 3259.

Subspecific characters.—Similar to *Eutamias speciosus frater*, but upperparts averaging slightly darker, the median pair of dorsal stripes less whitish and more mixed with cinnamon; tail and ears averaging slightly longer; tail much darker beneath, edged with a paler shade of buff, and with a greater amount of black at the tip. Compared with *speciosus:* Upper parts more brownish and less grayish in general tone, the median pair of dorsal stripes more mixed with cinnamon; rump and hind feet more buffy (less grayish); tail decidedly longer. Compared with *callipeplus:* Upperparts and sides more extensively tawny, the median pair of dorsal stripes less whitish; shoulders darker; tail with much greater amount of black at the tip; hind feet, ears, and tail longer.

Measurements of type.—Total length, 241; tail vertebræ, 114; hind foot, 36; ear from notch, 18.1. *Skull:* Greatest length, 36.8; zygomatic breadth, 19.4; mastoidal breadth, 14.9; interorbital breadth, 8.2; length of nasals, 12.5.

Remarks.—The sequoia chipmunk ranges on the upper slopes of the southern Sierra Nevada from San Joaquin River south to Tule River and east to Mt. Whitney and Olancha Peak. Doctor Merriam referred the series from "the eastern crest of the High Sierra from Olancha Peak and Mount Whitney northward" to *speciosus*, and the series from "the western slope of the Sierra from the headwaters of Tule River northward nearly to the Yosemite Valley" to *callipeplus*.[1] With a much larger series than was then available, I can detect no constant differences between these two colonies, but as a whole they show marked differences from all the other races, as pointed out above.

Eutamias townsendii siskiyou subsp. nov.

Type.—No. 161,033, U. S. National Museum (Biological Survey collection); female adult, skin and skull; from near summit of White Mountain, Siskiyou

[1] Merriam, C. Hart, Proc. Biol. Soc. Washington, vol. 11, pp. 200, 202, 1897.

Mountains, California (altitude 6,000 feet); collected September 16, 1909, by N. Hollister; original number 3432.

Subspecific characters.—Nearest to *Eutamias townsendii senex*, from which it differs in darker coloration of the upperparts and sides, the rump and thighs especially being much more brownish (less grayish). Compared with *ochrogenys:* Coloration much more grayish (less brownish); light dorsal stripes grayish white instead of tawny-olive; sides of head and face much less ochraceous; underparts more whitish and only faintly washed with pinkish buff; tail paler beneath; skull similar to that of *ochrogenys*, but averaging smaller.

Measurements of type.—Total length, 268; tail vertebræ, 104; hind foot, 36.5; ear from notch, 15.5. *Skull:* Greatest length, 38.5; zygomatic breadth, 21.4; mastoidal breadth, 16.4; interorbital breadth, 8.2; length of nasals, 12.3.

Remarks.—The Siskiyou chipmunk occupies the Siskiyou Mountain region of northern California and southern Oregon, ranging north to the upper Rogue River Valley, Oregon. It is, of course, intermediate in characters between *senex* and *ochrogenys*, but has well defined characters distinguishing it from either and occupies an area of considerable breadth.

Eutamias townsendii alleni[2] subsp. nov.

MARIN CHIPMUNK

Tamias townsendii hindsii Allen, Bull. Amer. Mus. Nat. Hist., vol. 3, p. 75, 1890, and of recent authors generally (not *Tamias hindsii* Gray).

Type specimen.—No. 135,177, U. S. Nat. Mus. (Biological Survey collection); male adult, skin and skull; from Inverness, Marin County, California; collected November 16, 1904, by N. Hollister; original number, 1378.

Geographic distribution.—Coast region of Marin County, California, from Point Reyes east to Mount Tamalpais.[3]

Subspecific characters.—Similar to *E. townsendii sonomæ* but slightly smaller; head and upperparts distinctly darker in both pelages; outer pair of light dorsal stripes usually strongly washed with buff; underparts averaging more buffy (less whitish); hind feet darker; tail averaging darker beneath; skull similar to that of *sonomæ* but averaging smaller. Compared with *E. townsendii ochrogenys:* Size much smaller; upperparts much brighter tawny (less olivaceous), especially in winter pelage; dorsal stripes more distinct, the dark stripes much more blackish, the light stripes more buffy; sides of face less extensively washed with ochraceous.

Measurements of type.—Total length, 231; tail vertebræ, 105; hind foot, 37; ear from notch, 16. *Skull:* Greatest length, 36.8; zygomatic breadth, 19.6; mastoidal breadth, 15.1; interorbital breadth, 7.8; length of nasals, 10.5.

Remarks.—This is a renaming of the form currently known as *Eutamias hindsii*, which name now proves to be a pure synonym of *E. townsendii townsendii*.

Inquiry of Mr. Oldfield Thomas regarding the type specimen of *Tamias hindsii* developed the fact that it is in the British Museum (No. 42.10.30.10). On the

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[2] Named for the late Doctor J. A. Allen, the first reviser of the chipmunks of this genus.

[3] Cf. Grinnell, J., Univ. Calif. Pub. Zool., vol. 12, p. 324, 1915.

assumption that this type was collected near San Francisco, California (cf. Allen, Bull. Amer. Mus. Nat. Hist., vol. 3, p. 77, 1890), specimens representing the three forms occurring in that general region—*pricei*, *sonomæ*, and *"hindsii"*—were sent to Mr. Thomas, who kindly compared them with the type of *hindsii* only to find that the latter agreed with none of them but was closely matched by specimens of *townsendii* from British Columbia.

The type specimen of *hindsii* was taken by Capt. Edward Belcher on the voyage of the *Sulphur* but the exact locality whence it came is unknown. The original label and the British Museum register credit it to "California," a name loosely applied in those days to the greater part of the Pacific coast of the United States. We learn from the narrative of the voyage of the *Sulphur* that the vessel put in at a number of ports on that coast, from Nootka Sound, British Columbia, to Magdalena Bay, Lower California and that collections were made in the vicinity of San Francisco and on the Sacramento River, also in the vicinity of Fort Vancouver, near the mouth of the Columbia River. In view of the positive indentification of the type with the species inhabiting the latter region it seems most probable that the specimen was taken at or near Fort Vancouver.

Mr. Thomas's identification of the type with *Eutamias townsendii* is confirmed by an examination of the colored plate in "The Zoology of the Voyage of H. M. S. Sulphur," which certainly resembles *townsendii* much more nearly than it does the form from Marin County, California, which has for many years been known under the name *E. hindsii*. The original description, also, though inadequate, fits certain specimens of *townsendii* without violence and in the mention of white underparts agrees with *townsendii* rather than with the California form. Mr. Thomas is of the opinion that the inscription "near San Francisco" was written on the type label at a later date by someone in the British Museum—evidently however, without authority for the statement.

Doctor Allen in his revision of the genus in 1890, attempted to define the type locality in the following words: *"Tamias hindsii* was originally based on a specimen almost unquestionably taken in the immediate vicinity of San Francisco, California, in the month of November."[4] That this assumption, however, is unwarranted is shown by the facts already cited.

Since *Eutamias hindsii* now becomes a synonym of *E. townsendii townsendii*, the form from Marin County, California currently known as *"hindsii"* must be provided with a new name, and it is a pleasure, therefore, to name it in honor of the late Dr. J. A. Allen.

REMARKS ON THE NOMENCLATURE OF EUTAMIAS

The last revision of the entire group was that of Allen, in 1890, in which 23 forms were recognized.[5] Merriam, in 1897, published a synopsis of the Pacific Coast forms, with a revision of the *townsendii* and *speciosus* groups.[6] Since the time of Allen's revision the material

[4] Allen, J. A., Bull. Amer. Mus. Nat. Hist., vol. 3, p. 77.

[5] Allen, J. A., op. cit., pp. 45–116, 1890.

[6] Merriam, C. Hart, Proc. Biol. Soc. Washington, vol. 11, pp. 189–212, 1897.

available for study has vastly increased[7] and the number of recognized forms has more than doubled; our knowledge of the distribution of the various species has of course likewise extended, but in the absence of a monograph of the group, the relationships of the species are not well understood and many forms in current nomenclature are wrongly assigned.

Much of this confusion is due to the erroneous identification by the earlier revisers of *Eutamias quadrivittatus* (the first member of the genus to be named) and their failure to recognize the distinction between the races of *Eutamias amœnus* and of *E. minimus*—two distinct species whose ranges overlap in several regions, and certain forms of which greatly resemble one another. Doctor Merriam, in 1905, showed conclusively that the name *quadrivittatus* applies to the larger of the two species occurring together in the mountains of Colorado and in the same paper named the smaller form (then currently confused with *quadrivittatus*) *E. amœnus operarius*.[8] He did not, however, attempt a revision of these two groups, and a more detailed study of the relationships of *operarius* shows it to be a subspecies of *Eutamias minimus* rather than of *E. amœnus*.

LIST OF RECOGNIZED AMERICAN FORMS OF EUTAMIAS, WITH SYNONYMS[9]

Eutamias alpinus[10]

EUTAMIAS MINIMUS GROUP

Eutamias minimus minimus (Bachman)
Eutamias minimus pictus (Allen)
Tamias minimus melanurus Merriam
Eutamias minimus caryi Merriam
Eutamias minimus pallidus (Allen)
Eutamias minimus cacodemus Cary
Eutamias minimus consobrinus (Allen)
Eutamias lectus Allen
Eutamias consobrinus clarus Bailey
Eutamias minimus operarius Merriam
Eutamias minimus atristriatus Bailey
Eutamias minimus arizonensis, nobis
Eutamias minimus oreocetes Merriam
Eutamias minimus borealis (Allen)

[7] Dr. Allen based his review on about 650 specimens, while the present writer has examined more than 10,000.

[8] Merriam, C. Hart, Proc. Biol. Soc. Washington, vol. 18, pp. 163–164, 1905.

[9] Synonyms in italics.

[10] This species apparently is not closely related to any other.

Eutamias minimus caniceps Osgood
Eutamias minimus neglectus (Allen)

EUTAMIAS AMŒNUS GROUP

Eutamias amœnus amœnus (Allen)
Eutamias amœnus propinquus Anthony
Eutamias amœnus monoensis Storer & Grinnell
Eutamias amœnus luteiventris (Allen)
Eutamias amœnus vallicola, nobis
Eutamias amœnus canicaudus Merriam
Eutamias amœnus affinis (Allen)
Eutamias amœnus ludibundus Hollister
Eutamias amœnus felix (Rhoads)
Eutamias amœnus caurinus Merriam
Eutamias panamintinus (Merriam)

EUTAMIAS QUADRIVITTATUS GROUP

Eutamias quadrivittatus quadrivittatus (Say)
Tamias quadrivittatus gracilis Allen
Eutamias quadrivittatus animosus Warren
Eutamias quadrivittatus hopiensis Merriam
Eutamias umbrinus (Allen)
Eutamias adsitus Allen
Eutamias ruficaudus ruficaudus Howell
Eutamias ruficaudus simulans, nobis
Eutamias cinereicollis cinereicollis (Allen)
Eutamias cinereicollis cinereus Bailey
Eutamias cinereicollis canipes Bailey
Eutamias bulleri bulleri (Allen)
Eutamias bulleri durangæ Allen
Tamias nexus Elliot
Eutamias bulleri solivagus, nobis
Eutamias speciosus speciosus (Merriam)
Eutamias speciosus callipeplus (Merriam)
Eutamias speciosus sequoiensis, nobis
Eutamias speciosus inyoensis Merriam
Eutamias speciosus frater (Allen)
Eutamias palmeri Merriam

EUTAMIAS TOWNSENDII GROUP

Eutamias townsendii townsendii (Bachman)
Tamias hindsii Gray
Tamias townsendii littoralis Elliot
Eutamias townsendii cooperi (Baird)
Eutamias townsendii ochrogenys Merriam
Eutamias townsendii siskiyou, nobis
Eutamias townsendii senex (Allen)
Eutamias townsendii sonomæ Grinnell
Eutamias townsendii alleni, nobis
Eutamias quadrimaculatus (Gray)
Tamias macrorhabdotes Merriam

Eutamias merriami merriami (Allen)
Eutamias merriami mariposæ Grinnell
Eutamias merriami pricei (Allen)
Eutamias merriami kernensis Storer & Grinnell
Eutamias merriami obscurus (Allen)
Eutamias merriami meridionalis Nelson & Goldman
Eutamias dorsalis dorsalis (Baird)
Eutamias canescens Allen
Eutamias dorsalis utahensis Merriam

Biological Survey, Washington, D. C.

GENERAL NOTES

HOARY BAT IN VERMONT

A live male specimen of the hoary bat (*Nycteris cinerea*) was picked up on the sidewalk at Woodstock, Vermont, June 20, 1921, and was presented to the writer for his private collection. This bat seems to be rare in Vermont in the breeding season although it must occur here during migrations. The only other specimen recorded as captured within the state was taken at Colchester, on Lake Champlain, October 12, 1842, and is now in the State museum at Montpelier. The writer and friends have watched for the hoary bat many evenings along mountain streams and lakes without success. On October 29, 1921, a large bat was seen flying over the marshes on a mountain lake in Wallingford, altitude 2300 feet. It was not shot as it would have been lost in the swale. The temperature had been below freezing on several occasions, and there was ice in some places when this bat was seen. The writer judged that none but a hoary bat would have showed the hardihood to be abroad at such a time.—George L. Kirk, *Rutland, Vt.*

AN INSTANCE OF UNPROVOKED ATTACK BY A BROWN BEAR

On August 25, 1921, I killed a moose while hunting on the headwaters of Sidney Creek, a tributary of the Nisutlin River, in Yukon Territory, Canada, and after butchering the same, returned to camp late in the evening.

The following morning Mr. W. E. Rumble, his son Willard Rumble and myself, taking two dogs with us, left for the scene of the kill with the intention of bringing in the meat for camp use. The moose was killed in a fairly dense thicket of willows and upon nearing the spot where the carcass was located I pushed on ahead of my companions, who were followed by the two dogs, until I was perhaps fifty or sixty feet ahead of them, entering the thicket by way of a narrow game trail. I had progressed only a short distance into the thicket when I heard a crashing in the underbrush, followed by an exclamation from one of my companions, and upon looking back, beheld a medium size brown bear charging directly toward them along the edge of the thicket. Mr. Rumble was armed with a Winchester repeating rifle, but before he could throw a load into the chamber and shoot, the dogs had rushed out at the bear and he then withheld